

ON THE ECHINODERM FAUNA OF NEW ZEALAND.

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(Communicated by the Secretary.)

The Echinoderm fauna of New Zealand is not homogeneous, nevertheless it contains a large number of peculiar forms which give it a strongly distinctive character of its own. Its affinities are strongest with that of Australia. Omitting doubtful and deep-water forms we find that fifty-eight per cent. of the known species are endemic, thirty-six per cent. occur in Australia, and only six per cent. have been found elsewhere and not in Australia.

If now we consider the several classes separately we find that remarkably great and exceedingly interesting differences obtain in their characteristics and distribution. Only two Crinoids have as yet been found in New Zealand seas. They are both deep-water forms dredged up by the naturalists of the "Challenger," and they both extend beyond the New Zealand area.

Of Ophiuroids we have sixteen species all of the family Ophiuridae.* Six of these are deep-water forms dredged up by the "Challenger," three of which range beyond the New Zealand area. Of the ten littoral forms seven are endemic. The remaining three species (*Amphiura elegans*, *Ophionereis Schayeri*, and *Ophiomyxa australis*) occur also in Australia, *Amphiura elegans* being a cosmopolitan species. *Amphiura* is the largest genus of Echinoderms, and the littoral forms are usually confined to limited areas. The distribution of *A. elegans* is, therefore, remarkable. *Ophionereis Schayeri* and *Ophiomyxa australis* belong to small genera, the species of which are noted for their wide distribution in shallow water. Our species of *Ophionereis*

* I retain the late Mr. Lyman's classification at present, for the class contains only two well defined natural families.

appears to be closely allied to *O. albomaculata*, Smith, from the Galapagos Islands. Only one genus is endemic with but one species, *Ophiopteris antipodum*, a very distinct and peculiar form. A remarkable feature of our Ophiuroid fauna is the absence of the large and widely diffused genus *Ophiothrix*, which is well represented in the seas of Australia and other southern lands; when our littoral* comes to be thoroughly explored, however, species of this genus will probably be discovered here. Only one Astrophyton is at present known to occur in New Zealand seas. A single example of an undescribed species of *Ophioceras* is in the Colonial Museum at Wellington, which was found by the late Prof. Kirk at Jackson Bay.

Twenty-eight Asteroids have been recorded as from New Zealand. These are almost equally divided between the two orders of recent Asteroids, thirteen being Phanerozionate and fifteen Cryptozionate. The occurrence of two species in our seas appears to be doubtful, that of *Choriaster granulatus* being based upon an example in the Vienna Museum labelled as from New Zealand ("Challenger" Rpt. Vol. xxx. p. 354), and the occurrence of *Nepanthia maculata* here rests upon the doubtful identification of a specimen from Wellington (Trans. N.Z. Inst. Vol. xi. p. 306). Of the remaining twenty-six species two are deep-water forms dredged up by the "Challenger," and one of these, *Psilaster acuminatus*, ranges to Australia and South Africa. Of the littoral forms, omitting doubtful species, sixteen are endemic, seven are found in Australia or Tasmania, four of which are noted for their great geographical range, and one species, *Cribrella ornata*, extends to the Cape of Good Hope, but not to Australia.

Of the twenty-three Echinoids which have been found here, only one (*Goniocidaris umbraculum*) is peculiar to New Zealand, and this form needs re-examination when fresh material is available. Three are "Challenger" species from deep water, two of

* I use the term "littoral" not as restricted by Forbes, but in its widest sense, including the whole of the area between high-water mark and the 100-fathom line—"the continental shelf."

which (*Asthenosoma gracile* and *Pourtalesia laguncula*) range beyond the New Zealand seas. Of the rest fourteen are known to occur also in Australia, some of which are widely ranging forms. Two species (*Echinus magellanicus* and *Echinus margaritaceus*), which are widely diffused in the Southern Ocean and western Pacific, appear to be absent from the Australian fauna, though we might expect to find them there. *Evechinus chloroticus*, the commonest New Zealand Echinoid, ranges northwards to Fiji, and this or a nearly allied form (*E. australe*) occurs in Australia. The occurrence of *Laganum rostratum*, a Zanzibar form, in New Zealand appears to be extremely doubtful, and our species may be *Laganum decagonale*, which has a wide range in the western Pacific and Indian Ocean, and occurs freely in north-eastern Australia. I suspect that our species of *Salmacis*, identified as *S. globator*, may prove to be *S. alexandria*, Bell ("Alert" Rpt. p. 118, and Proc. Linn. Soc. N.S.W. Vol. ix. p. 505), which is a common Australian form. Of the twenty-three above-mentioned species sixteen belong to the order of regular Echinoids—Desmosticha. Only two Clypeastroids have been recorded as from New Zealand. The occurrence of one, *Laganum rostratum*, is doubtful, but the other, *Arachnoides placenta*, partially compensates for the poverty of species in New Zealand by its great abundance and general distribution in shallow water. Of Spatangoids (heart-shaped urchins) we have but five species, three of which are remarkable for their extremely wide range. One species (*Pourtalesia laguncula*) is exclusively a deep-water form. Perhaps the most interesting of all the New Zealand Echinoids is *Echinobrissus recens*, which has also been found in Madagascar. It is the lingering remnant of an old-world fauna which has long since passed away, and as the recent form is apparently rare both in Madagascar and New Zealand it will most likely soon become extinct. Species of the genus *Echinobrissus* were abundant and widely distributed during the Jurassic and Cretaceous periods, and one species (*E. australis*, Duncan) occurs in the Australian Tertiaries (Qr. Journ. Geol. Soc. Vol. xxxiii. p. 50). Prof. Ralph Tate has shown that the affinity of the Echinoid fauna of New

Zealand was almost as strong with that of Australia in early Tertiary times as at the present day (New Zealand Geological Report for 1892-1893 [1894]. p. 127).

Of Holothurians we have twenty species, omitting *Pso'us macquariensis*, Dendy; for it will probably be found that the marine fauna of the Macquarie Islands is not New Zealandian, but Antarctic. Six of these were obtained from deep water by the "Challenger." The rest (fourteen species) appear to be endemic.

Thus we see that nearly all the Ophiuroids and most of the Asteroids are endemic, while all the Echinoids, except perhaps *Goniocidaris umbraculum*, occur elsewhere, a large number of them being widely ranging forms. The littoral Holothurians, on the other hand, are all peculiar to New Zealand. When we consider the immense effect of currents in the diffusion of marine animals, it appears that the eggs or plutei of most Echinoids remain free for a considerable time, and are capable of being transported long distances without being destroyed, so that the littoral species are usually widely diffused. Some of the Asteroids in their young state apparently remain free for a considerable time, and are widely dispersed by marine currents; many species, however, cannot be conveyed across wide stretches of ocean, and are confined to very limited areas of distribution. Very few Ophiuroids are capable of being transported across wide oceans, being either but a short time free or incapable in their young stage of enduring changes of temperature, and being tossed about for some time on the surface of the sea. No doubt many of them are viviparous, and are thus confined to very limited areas, as is the case with *Ophiopeza cylindrica*. Even viviparous species, however, which live on seaweed may become widely dispersed by being transported on masses of floating seaweed. This is probably the case with *Ophiomyxa australis*, which is viviparous. The eggs or young of the littoral Holothurians only remain a short time free or are too delicate and easily destroyed to be transported long distances on the surface of the sea.

Since the systematic study of the distribution of marine animals was taken in hand by the late Prof. Edward Forbes, it has been evident that the faunal regions based on the distribution of terrestrial animals do not correspond with the marine faunal regions. Prof. Allman has defined a number of regions to illustrate the distribution of the Hydroida ("Challenger" Rpt. Vol. xxii. p. lv.). The Australian Region is described as that area lying between the 20th and 60th parallels of south latitude and between the meridians of 90 degrees east and 170 degrees west longitude and the East Indian Region, the area lying immediately to the north of the Australian Region, between the same meridians and extending northwards to the 30th degree of north latitude. In considering the distribution, not only of the Hydroids or Echinoderms, but of the marine fauna as a whole, it seems to me necessary in order to obtain a more natural division that the boundary between these two regions should be moved considerably further south—say, to latitude 25° S., extending from the western boundary of the region to the east coast of Australia, and thence curving southwards so as to exclude Norfolk Island and the Kermadecs from the Australian Region, the marine fauna of these islands being rather Polynesian or tropical in character than New Zealandian. The dimensions of the East Indian Region thus become considerably augmented, and when the marine fauna of the Polynesian area becomes better known I suspect that it may be found necessary to extend it still further by removing the eastern boundary about forty degrees further eastward so as to include the whole of the Polynesian Islands. I believe that the Australian Region as defined above will prove to be a very natural marine faunal area of which New Zealand with its surrounding shallow seas, *i.e.*, the New Zealand Plateau* within this region, excluding

* The New Zealand Plateau includes the whole area between New Zealand and the off-lying islands to the south-east (Auckland, Campbell, Antipodes and Chatham Islands), for although, on account of the faulty soundings of former times, deep water was supposed to exist here, it has been proved, by a line of soundings recently taken by Sir James Hector, between the islands and from the Chathams to Lyttelton, that the water is comparatively shallow.

Lord Howe Island, forms a distinct and well-marked subregion. I exclude Lord Howe Island, for although it is part of the New Zealand area (situated on the New Zealand Plateau) and the affinities of its terrestrial fauna and flora are strongly New Zealandian, its marine fauna is largely, if not wholly, Australian.

Our knowledge of the Echinoderm fauna of New Zealand is far from complete. Very little systematic collecting has been done, and the dredge has hardly been used at all. No doubt many new and interesting forms still remain to be discovered, and when our valuable off-shore fisheries are developed and the littoral zone becomes thoroughly explored the richness of the fauna will be largely increased. We have here in New Zealand all the conditions favourable to the development and subsistence of a rich and varied littoral marine fauna—genial climate, a broad belt of littoral fringing the land, great extent of coast line with many sheltered bays and harbours, numerous shell-banks and rocky reefs clothed with rich and varied marine vegetation, and great diversity of habitat caused by the variety of the geological structure of the land. And what appears to me to add immensely to the interest attaching to our fauna, and makes its elucidation so exceedingly important, is that we have here in New Zealand a set of physical conditions which do not obtain elsewhere—namely, a group of islands which are neither oceanic nor continental, but rather intermediate in character, rising from a great submerged plateau, which has been the scene of immense changes during Tertiary times, and is separated from all the great continental areas by deep and wide oceans.

LIST OF NEW ZEALAND ECHINODERMS.

CRINOIDEÆ.

COMATULÆ.

1. ANTEDON ALTERNATA.

A. alternata, Carpenter, 1888, "Challenger" Rept., Vol. xxvi., p. 179.

Distribution.—Off East Cape; Kermadec Isds.; New Guinea; Japan; 630-1070 fms.

2. EUDIOCRINUS SEMPERI.

E. Semperi, Carpenter, 1882, Journ. Linn. Soc. (Zool.), Vol. xvi, p. 497; 1888, "Challenger" Rept., Vol. xxvi, p. 82.

Distribution.—Off East Cape; Australia; 700-950 fms.

OPHIUROIDEA.

OPHIURIDÆ.

3. PECTINURA MACULATA.

Ophiarachna maculata, Verrill, 1869, Proc. Bost. Soc. Nat. Hist., Vol. xii, p. 388, (Trans. N.Z. Inst., Vol. xii, p. 282); *Pectinura maculata*, Verrill, 1869, Amer. Journ. Sci., Vol. xlvi, 2nd Ser., p. 431; 1871, Trans. Connect. Acad., Vol. i, p. 574; Lyman, 1874, Bull. Mus. Comp. Zool., Vol. iii, p. 222; 1882, "Challenger" Rpt., Vol. v, p. 15; Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi, p. 190; *Ophiura maculata*, Hutton, 1872, Cat. Ech. of N.Z., p. 3.

Distribution.—Auckland; Wellington; Cook Strait; Lyttleton; Stewart Isd.; Chatham Isds.

4. OPHIOPEZA CYLINDRICA.

Ophiura cylindrica, Hutton, 1872, Cat. Ech. N.Z., p. 3; *Ophiopeza cylindrica*, Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii, p. 198; 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi, p. 190.

Distribution.—Cook Strait; Chatham Isds.

5. OPHIOGLYPHA RUGOSA.

O. rugosa, Lyman, 1878, Bull. Mus. Comp. Zool., Vol. v, p. 92; 1882, "Challenger" Rpt., Vol. v, p. 68.

Distribution.—Off East Cape; 700 fms.

6. OPHIOMUSEUM LYMANI.

O. Lymani, Thomson, 1873, Depths of the Sea, p. 172; Lyman, 1878, Bull. Mus. Comp. Zool., Vol. v, p. 113; 1882, "Challenger"

Rpt., Vol. v., p. 90; Koehler, 1896, Mém. Soc. Zool. de France, pp. 204, 242.

Distribution.—Off East Cape; Atlantic; Western Pacific; 690-1250 fms.

7. OPHIOZONA STELLATA.

O. stellata, Lyman, 1878, Bull. Mus. Comp. Zool., Vol. v., p. 125; 1882, "Challenger" Rpt., Vol. v., p. 22.

Distribution.—Off the east coast North Island; 700-1100 fms.

8. OPHIOMASTUS TEGULITIUS.

O. tegulitius, Lyman, 1878, Bull. Mus. Comp. Zool., Vol. v., p. 104; 1882, "Challenger" Rpt., Vol. v., p. 100.

Distribution.—Off west coast North Island; Australia; New Guinea; 275-2600 fms.

9. OPHIOCTEN HASTATUM.

O. hastatum, Lyman, 1878, Bull. Mus. Comp. Zool., Vol. v., p. 103; 1882, "Challenger" Rpt., Vol. v., p. 82.

Distribution.—Off east coast North Island; lat. 46° 46' S., long. 45° 31' E., North Atlantic; 1000-1375 fms.

10. OPHIONEREIS SCHAYERI.

Ophiolepis Schayeri, Müller and Troschel, 1844, Wieg. Archiv, Vol. x., p. 182; *Ophionereis Schayeri*, Lütken, 1859, Addit. ad Hist. Oph., Part 2, p. 110; Lyman, 1882, "Challenger" Rpt., Vol. v., pp. 161, 162; Bell, 1884, Proc. Linn. Soc. N.S.W., Vol. ix., p. 500; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 197; *Ophionereis fasciata*, Hutton, 1872, Cat. Ech. N.Z., p. 2; Proc. Zool. Soc., 1872, p. 811.

Distribution.—New Zealand; Australia; Tasmania.

11 OPHIACTIS NIGRESCENS.

O. nigrescens, Hutton, 1872, Cat. Ech. N.Z., p. 2; Lyman, 1882, "Challenger" Rpt., Vol. v., pp. 114, 122.

Distribution.—New Zealand.

12. AMPHIURA PARVA.

A. parva, Hutton, 1878, Trans. N.Z. Inst., Vol. xi., p. 305.
Distribution.—Dunedin Harbour.

13. AMPHIURA LANCEOLATA.

A. lanceolata, Lyman, 1879, Bull. Mus. Comp. Zool., Vol. vi., p. 25; 1882, "Challenger" Rpt., Vol. v., p. 133.
Distribution.—Off East Cape; 700 fms.

14. AMPHIURA ROSEA.

A. rosea, Farquhar, 1893, Trans. N.Z. Inst., Vol. xxvi., p. 110.
Distribution.—Wellington Harbour.

15. AMPHIURA PUSILLA.

A. pusilla, Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 191.
Distribution.—Cook Strait.

16. AMPHIURA ELEGANS.*

Ophiura elegans, Leach, 1815, Zool. Misc., Vol. ii., p. 57; *Ophiura neglecta*, Forbes, 1840, Hist. Brit. Starf., p. 30; *Amphiura squamata*, Lyman, 1865, Ill. Cat. Mus. Comp. Zool., Vol. i., p. 121; 1882, "Challenger" Rpt., Vol. v., p. 136; *Amphiura elegans*, Bell, 1892, Cat. Brit. Ech., p. 119; Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 191.

Distribution.—Wellington; Gisborne; Akaroa; Lyttelton; North Atlantic; Arctic Ocean; West Indies; South Africa; Australia; Chile.

17. OPHIOPTERIS ANTIPODUM.

O. antipodum, Smith, 1877, Ann. and Mag. Nat. Hist., Ser. 4, Vol. xix., p. 305; Lyman, 1882, "Challenger" Rpt., Vol. v., p. 176; Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 192.

Distribution.—Tasman Bay; Cook Strait.

* Complete references and synonymy of this species may be found in Prof. Bell's British Museum Catalogue, 1892.

18. OPHIOMYXA AUSTRALIS.

O. australis, Lütken, 1869, Addit. ad Hist. Oph., Part 3, p. 99; Lyman, 1882, "Challenger" Rpt., Vol. v., p. 246; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 199.

Distribution.—Cook Strait; Stewart Island; off Cape Egmont; Australia; St. Paul's Rocks; South Africa; Amboyna; Tongatabu; Fiji; Philippine Isds.; 0-315 fms.

ASTEROIDEA.

ASTROPECTINIDÆ.

19. ASTROPECTEN EDWARDSII.

A. Edwardsii, Verrill, 1867, Trans. Connecticut Acad., Vol. i., p. 250 (Trans. N.Z. Inst., Vol. xii., p. 281); Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 734.

Distribution.—Auckland.

20. ASTROPECTEN POLYACANTHUS,

A. polyacanthus, Müller and Troschel, 1842, System der Asteriden, p. 69; Perrier, 1875, Révis. Stell. Mus., p. 355 (Archiv. Zool. Expér., Vol. v., p. 275); Sladen, 1878, Journ. Linn. Soc. (Zool.), Vol. xiv., p. 428; 1889, "Challenger" Rpt., Vol. xxx. p. 201; Bell, 1884, "Alert" Rpt., p. 133; 1884, Proc. Linn. Soc. N.S.W., Vol. ix., p. 499; 1887, Trans. Roy. Dublin Soc. (Series 2), Vol. iii., p. 648; Loriol, 1885, Mém. Soc. Phys. Genève, Vol. xxix., p. 76; 1893, Revue Suisse Zool. et Ann. Mus. Genève, Vol. i., p. 379; *A. vappa*, Müller and Troschel, 1843, Wieg. Archiv f. Naturgesch., p. 119; *A. hestrix*, Müller and Troschel, 1842, System der Asteriden, p. 70; *A. armatus*, Müller and Troschel, 1842, *ibid.* p. 71; Lütken, 1864, Vidensk. Meddelelser, p. 132; Martens, 1865, Ueb. Ostasiat. Echin., Wieg. Archiv, p. 352; Hutton, 1872, Cat. Ech. N.Z., p. 6; Walter, Jen. Zeitsch., Vol. xviii., p. 368; Ives, 1891, Proc. Acad. Philad., Pt. 2, p. 211; *A. chinensis* and *A. ensifer*, Grube, 1865, Jahresber. Schles. Gesellsch. f. vaterl. Cultur, Breslau, p. 36.

Distribution.—New Zealand; Australia; Admiralty and Fiji Islands; Japan; China; Ceylon; Andaman Islands; B. of Bengal; Mauritius; Red Sea.

21. PSILASTER ACUMINATUS.

P. acuminatus, Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 225.

Distribution.—Off the west coast North Island; Australia; South Africa; 150-950 fms.

PENTAGONASTERIDÆ.

22. ASTROGONIUM PULCHELLUM.

Pentagonaster pulchellus, Gray, 1840, Ann. Mag. Nat. Hist., Vol. vi., p. 280; 1866, Synopsis of Starfish, p. 11; Hutton, 1872, Cat. Ech. N.Z. p. 8; *P. (Dorigona) pulchellus*, Tenison-Woods, 1879, Trans. Phil. Soc. Adelaide, p. 91; *Stephanaster elegans*, Ayres, 1854, Proc. Boston Soc. Nat. Hist., Vol. iv., p. 119; *Astrogonium crassimanum*, Möbius, 1859, Neue Seesterne Hamburger und Kieler Mus., p. 8; *Astrogonium pulchellum*, Sladen, 1889, "Challenger" Rpt., Vol. xxx, p. 748; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii, p. 200.

Distribution.—Dunedin; Foveaux Strait; Chatham Islands; Australia; Tasmania; East Indies; China.

23. ASTROGONIUM ABNORMALE.

Astrogonium abnormale, Gray, 1866, Synopsis of Starfish, p. 11; *A. pulchellum* var. B., Hutton, 1872, Cat. Ech. N.Z., p. 8; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 200; *Astrogonium* sp., Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi, p. 194.

Distribution.—Nelson; Wellington; Dunedin.

24. GNATHASTER MILIARIS.

Astrogonium miliare, Gray, 1847, Proc. Zool. Soc. p. 80; 1866, Synopsis of Starfish, p. 10; Hutton, 1872, Cat. Ech. N.Z., p. 7; *Pentagonaster (astrogonium) miliaris*, Perrier, 1876, Révis. Stell.

Mus., p. 220 (Archiv. Zool. Expér., Vol. v., p. 36); 1878, Nouv. Archiv. Mus. Hist. Nat., 2^e Série., Vol. i., p. 84; *Gnathaster miliaris*, Sladen, 1889, "Challenger" Rpt., Vol. xxx., pp. 286, 750.

Distribution.—Hawke's Bay; Cape Farewell.

25. GNATHASTER RUGOSUS.

Astrogonium rugosum, Hutton, 1872, Cat. Ech. N.Z., p. 7; *Gnathaster rugosus*, Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 194.

Distribution.—Tasman Bay.

26. GNATHASTER DILATATUS.

Pentagonaster (Astrogonium) dilatatus, Perrier, 1876, Archiv. Zool. Expér., Vol. v., p. 33; *Gnathaster dilatatus*, Sladen, 1889, "Challenger" Rpt., Vol. xxx., pp. 286, 750.

Distribution.—New Zealand.

PENTACEROTIDÆ.

27. CHORIAS TER GRANULATUS.

C. granulatus, Lütken, 1869, Cat. Mus. Godeffroy, No. iv., p. 35; 1871, Videnskab Medd. naturh. Foren. i Kjobenhavn, p. 243; Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 354.

Distribution.—New Zealand?; Philippine, Pelew and Fiji Islands.

ASTERINIDÆ.

28. NEPANTHIA MACULATA.

N. maculata, Gray, 1840, Ann. Mag. Nat. Hist., Vol. vi., p. 287; Sladen, 1889, "Challenger" Rpt., Vol. xxx., pp. 388, 772; *Chataster maculatus*, Müller and Troschel, 1842, System der Asteriden, p. 28; Hutton, 1878, Trans. N.Z. Inst., Vol. xi., p. 306; *Chataster cylindratus*, Möbius, 1859, Neue Seesterne des Hamburger and Kieler Museums, p. 1; *Asterina (Nepanthia) maculata*, Perrier, 1876, Révis. Stell. Mus., p. 322 (Archiv. Zool. Expér., t. v., p. 242).

Distribution.—Wellington?; Arafura Sea; off New Guinea; Migupou.

29. ASTERINA REGULARIS.

Asterina gunnii var., Gray, 1840, Ann. Mag. Nat. Hist., Vol. vi, p. 290; *Asteriscus australis* (pars), Müller and Troschel, 1842, System der Asteriden, p. 43; *Asterina (Asteriscus) regularis*, Verrill, 1867, Trans. Conn. Acad., Vol. i., p. 250 (Trans. N.Z. Inst., Vol. xii., p. 281); *Asterina cabbalistica*, Lütken, 1871, Videnskab. Medd. naturh. Foren. i Kjobenhavn, p. 242; *Asterina regularis*, Hutton, 1872, Cat. Ech. N.Z., p. 9; 1878, Trans. N.Z. Inst., Vol. xi., p. 306; Sladen, 1889, "Challenger" Rpt., Vol. xxx., pp. 392, 776; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 199; 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 196.

Distribution.—New Zealand.

30. ASTERINA NOVÆ-ZEALANDIÆ.

A. novæ-zealandiæ, Perrier, 1876, Archiv. Zool. Expér., Vol. v., p. 33; Sladen, 1898, "Challenger" Rpt., Vol. xxx., pp. 391, 774.
Distribution.—New Zealand.

31. STEGNASTER INFLATUS.

Pteraster inflatus, Hutton, 1872, Cat. Ech. N.Z., p. 10; *Palmipes inflatus*, 1876, Trans. N.Z. Inst., Vol. ix., p. 362; Perrier, 1876, Révis. Stell. Mus., p. 291 (Archiv. Zool. Expér., Vol. v., p. 211); *Stegnaster inflatus*, Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 778; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 199.

Distribution.—Wellington; Nelson; Timaru; Auckland.

LINCKIIDÆ.

32. METRODIRA SUBULATA.

M. subulata, Gray, 1840, Ann. Mag. Nat. Hist., Vol. vi., p. 282; Sladen, 1889, "Challenger" Rpt., Vol. xxx., pp. 416, 790; *Seytaster subulatus*, Müller and Troschel, 1842, System der Asteriden, p. 36.

Distribution.—George Sound; Australia; Migupou.

STICHASTERIDÆ.

33. STICHASTER AUSTRALIS.

Celasterias australis, Verrill, 1867, Trans. Connect. Acad., Vol. i., p. 247 (Trans. N.Z. Inst., Vol. xii., p. 279); Hutton, 1872, Cat. Ech. N.Z., p. 5; *Stichaster australis*, Sladen, 1889, "Challenger" Rpt., Vol. xxx., pp. 431, 792; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 202.

Distribution.—Auckland; North Cape; Wellington; Lyttelton; Akaroa; Milford Sound.

34. STICHASTER POLYPLAX.

Asteracanthion polyplax, Müller and Troschel, 1844, Archiv f. Naturgesch., Jahrg. x., Bd. i., p. 178; *Asterias polyplax*, Perrier, 1875, Révis. Stell. Mus., p. 63 (Archiv. Zool. Expér., t. iv., p. 327); *Tarsaster neozelanicus*, Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 207; *Stichaster polyplax*, Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 432; Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 196.

Distribution.—Cook Strait; Nelson; Hokianga; Australia.

35. STICHASTER SUTERI.

Asterias rupicola, Hutton (not Verrill), 1878, Trans. N.Z. Inst., Vol. xi., p. 306; *Stichaster Suteri*, Lorient, 1894, Revue Suisse de Zool. et Ann. Mus. de Genève, Vol. xi., p. 477; *S. littoralis*, Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 206; *S. Suteri*, Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 197.

Distribution.—Taylor's Mistake; Dunedin; Stewart Island.

36. STICHASTER SUTERI VAR. LEVIGATUS.

Asterias rupicola var. *levigatus*, Hutton, 1878, Trans. N.Z. Inst., Vol. xi., p. 343; *Stichaster Suteri* var. *levigatus*, Farquhar, 1898, Trans. N.Z. Inst., Vol. xxx., p. 189.

Distribution.—Auckland Islands.



37. STICHIASTER INSIGNIS.

S. insignis, Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 203; 1898, Vol. xxx., p. 188.

Distribution.—Wellington Harbour; Taylor's Mistake.

ECHINASTERIDÆ.

38. CRIBRELLA COMPACTA.

Henricia oculata, Hutton, 1872, Cat. Ech. N.Z., p. 7; *Cribrella compacta*, Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 543; Farquhar, 1898, Trans. N.Z. Inst., Vol. xxx., p. 191.

Distribution.—Off the West coast North Island.

39. CRIBRELLA ORNATA.

Echinaster (Cribrella) ornata, Perrier, 1863, Ann. Sci. Nat., 5^e Série, t. xii., p. 251; *Cribrella ornata*, Perrier, 1875, Révis. Stell. Mus. p. 112 (Archiv. Zool. Expér., t. iv., p. 376); Sladen, 1889 "Challenger" Rpt., Vol. xxx., pp. 541, 543, 808; Farquhar, 1898, Trans. N.Z. Inst., Vol. xxx., p. 190.

Distribution.—New Zealand; Campbell Isds.; The Snares; Cape of Good Hope.

40. CRIBRELLA LUKINSII.

Cribrella Lukinsii, Farquhar, 1898, Trans. N.Z. Inst., Vol. xxx, p. 190.

Distribution.—Campbell Islands.

41. ECHINASTER PURPUREUS.

Othilio purpurea, Gray, 1840, Ann. Mag. Nat. Hist., Vol. vi., p. 282; *Othilio lusonica*, Gray, *ibid.*, p. 282; *Cribrella fallax*, Dujardin and Hupé, 1862, Hist. Nat. Zooph. Echin. (Suites à Buffon), p. 350; *Echinaster fallax*, Müller and Troschel, 1842, System der Asteriden, p. 23; Perrier, 1875, Révis. Stell. Mus. p. 106; *Echinaster purpureus*, Bell, 1884, Proc. Linn. Soc. N.S.W., Vol. ix., p. 498; 1884, "Alert" Rpt., p. 124; Loriol, 1885, Mém. Soc. Phys. Genève, Vol. xxix., p. 10; Sladen, 1889 "Challenger"

Rpt., Vol. xxx., p. 810; Martens, 1889, Sitz. der Gesell. naturf. Berlin, p. 183.

Distribution.—New Zealand; Australia; Philippine Isds.; Timor; Madras; Mauritius; Zanzibar; Red Sea; New Guinea.

ASTERIIDÆ.

42. ASTERIAS CALAMARIA.

A. calamaria, Gray, 1840, Ann. Mag. Nat. Hist., Vol. vi., p. 179; 1866, Synopsis of Starfish, p. 1; Perrier, 1875, Révis. Stell. Mus., p. 43 (Archiv. Zool. Expér., t. iv.); Bell, 1881, Proc. Zool. Soc., p. 494; Studer, 1884, Verh. d. Akad. d. Wissensch. Berlin, p. 8; Bell, 1884, "Alert" Rpt., p. 123; 1884, Proc. Linn. Soc., N.S.W., Vol. ix, p. 498; Loriol, 1885, Mém. Soc. Phys. Genève, Vol. xxix., p. 4; Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 583; Etheridge, 1889, "Lord Howe Island," p. 38; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 200; 1898, Vol. xxx., p. 187; *Asteracanthion calamaria*, Müller and Troschel, 1842, System der Asteriden, p. 19; Dujardin and Hupé, 1862, Suites à Buffon, Echin., p. 339; *Asteracanthion tennispinus* and *A. calamaria*, Michelin, 1845, Magasin de Zoologie, p. 18; *Coscinaasterias muricata*, Verrill, 1867, Trans. Conn. Acad., Vol. 1, p. 249 (Trans. N.Z. Inst., Vol. xii., p. 280); Hutton, 1872, Cat. Ech. N.Z., p. 6; *Asteracanthion australis*, Perrier, 1869, Ann. Sci. Nat. 5^e Série, t. xii., p. 220; *Asterias jehennesei*, Perrier, 1875, Révis. Stell. Mus. p. 47 (Archiv. Zool. Expér., t. iv., p. 311).

Distribution.—New Zealand; Lord Howe Island; Australia; Tasmania; Mauritius; 0-38 fms.

43. ASTERIAS SCABRA.

Margaraster (?) scaber, Hutton, 1872, Cat. Ech. N.Z., p. 5; *Asterias scabra*, Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 826; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 202.

Distribution.—Wellington; Nelson; Akaroa.

44. ASTERIAS MOLLIS.

A. mollis, Hutton, 1872, Cat. Ech. N.Z., p. 4; Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 824.

Distribution.—Lyttelton.

45. ASTERIAS FRAGILIS.

A. fragilis, Studer, 1884, Anhang z. d. Abhandl. d. k. preuss. Akad. d. Wiss. Berlin, vom Jahre 1884, p. 11.

Distribution.—Off the East Coast; 597 fms.

46. UNIOPHORA GRANIFERA.

Asterias granifera, Lamarck, 1816, Hist. Nat. Anim. s. Vert. t. ii, p. 560; *Asteracanthion graniferus*, Müller and Troschel, 1842, System der Asteriden, p. 20; Hutton, 1878, Trans. N.Z. Inst., Vol. xi., p. 306; *Margaraster graniferus*, Gray, 1866, Synopsis of Starfish, p. 2; *Asterias granifera*, Perrier, 1878, Révis. Stell. Mus. p. 76; *Uniophora granifera*, Bell, 1881, Proc. Zool. Soc., p. 497; Sladen, 1889, "Challenger" Rpt., Vol. xxx., p. 830.

Distribution.—Dunedin; Tasmania.

ECHINOIDEA.

CIDARIDÆ.

47. GONIOCIDARIS UMBRACULUM.

Cidaris tubaria, Hutton, 1872 (not Lamk.), Cat. Ech. N.Z., p. 10; *Goniocidaris umbraculum*, Hutton, 1878, Trans. N.Z. Inst., Vol. xi., p. 306.

Distribution.—Foveaux Straits.

48. CENTROSTEPHANUS RODGERSII.

Thrichodiadema Rodgersii, A. Agassiz, 1863, Proc. Acad. Phila., p. 354; Bölsche, 1865, Wieg. Arch., Vol. i., p. 336; *Centrostephanus Rodgersii*, A. Agassiz, 1872, Revis. Ech., pp. 98, 412; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 154; 1880, *ibid.*, Vol. v., p. 196; Ramsay, 1885, Cat. Ech. Aust. Mus., pp.

6, 44; Etheridge, 1889, "Lord Howe Island," p. 37; Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 189.

Distribution.—New Zealand; Australia; Tasmania; Lord Howe Island; New Caledonia.

49. ASTHENOSOMA GRACILE.

A. gracile, A. Agassiz, 1881, "Challenger" Rpt., Vol. iii., p. 89.

Distribution.—Off East Cape; Philippine Islands; New Guinea; 150-1400 fms.

50. PIHORMOSOMA RIGIDUM.

P. rigidum, A. Agassiz, 1881, "Challenger" Rpt., Vol. iii., p. 104.

Distribution.—Off East Cape; 700 fms.

51. STRONGYLOCENTROTUS TUBERCULATUS.

Echinus tuberculatus, Lamarck, 1816, Anim. sans Vert., p. 50; *Strongylocentrotus tuberculatus*, A. Agassiz, 1872, Rev. Ech., pp. 165, 449; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 157; Etheridge, 1889, "Lord Howe Island," p. 38; Bell, 1884, Proc. Linn. Soc. N.S.W., Vol. ix., p. 502; Ramsay, 1885, Cat. Ech. Aust. Mus., pp. 13, 46; Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 189; *Echinus omalostoma*, Valenciennes, 1846, Voy. de "Venus," Zooph. Pl. 6, figs. 2-2f.

Distribution.—New Zealand; Lord Howe Island; Australia; Japan; China.

52. STRONGYLOCENTROTUS ERYTHROGRAMMUS.

Echinus erythrogrammus, Valenciennes, 1846, Voy. de "Venus," Zooph. Pl. 7, figs. 1-1d; *Strongylocentrotus erythrogrammus*, A. Agassiz, 1872, Rev. Ech., pp. 163, 441; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 157; 1880, *ibid.*, Vol. v., p. 199; A. Agassiz, 1881, "Challenger" Rpt., Vol. iii., p. 106; Bell, 1884, Proc. Linn. Soc. N.S.W., Vol. ix., pp. 502, 505; 1884, "Alert" Rpt., p. 121; Ramsay, 1885, Cat. Ech. Aust. Mus., pp. 13, 46; Farquhar, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 189.

Distribution.—New Zealand; New Caledonia; Australia Tasmania; Samoa; Japanese Seas; Chili.

53. SPHÆRECHINUS AUSTRALIE.

S. australie. A. Agassiz, 1872, Bull. Mus. Comp. Zool., Vol. iii.; Rev. Ech. pp. 159, 451; 1881, "Challenger" Rpt., Vol. iii., p. 106; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 158; 1880, *ibid.*, Vol. v., p. 200; Ramsay, 1885, Cat. Ech. Aust. Mus., pp. 14, 46; Bell, 1884, Proc. Linn. Soc. N.S.W., Vol. ix., p. 502.

Distribution.—New Zealand; Australia; Tasmania; Mauritius; Solomon Islands.

ECHINIDÆ.

54. TEMNOPLEURUS REYNAUDI.

T. Reynaudi, Agassiz, 1846, Cat. Rais. Ann. Sc. Nat., Vol. vi., p. 360; A. Agassiz, 1872, Rev. Ech., pp. 166, 461; 1881, "Challenger" Rpt., Vol. iii., p. 107; Sladen, 1878, Journ. Linn. Soc. (Zool.), Vol. xiv., p. 437.

Distribution.—West of New Zealand; Australia; Ceylon; China Seas; East Indies; Philippine Islands.

55. SALMACIS GLOBATOR.

S. globator, Agassiz, 1846, Cat. Rais. Ann. Sc. Nat., Vol. vi., p. 356; A. Agassiz, 1872, Rev. Ech., pp. 156, 473; 1881, "Challenger" Rpt., Vol. iii., p. 113; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 161; Hutton, 1878, Trans. N.Z. Inst., Vol. xi., p. 306; Bell, 1880, Proc. Zool. Soc., pp. 431, 433; Ramsay, 1885, Cat. Ech. Aust. Mus., pp. 17, 49.

Distribution.—Stewart Island; Australia; Arafura Sea; Samboangan.

56. AMBLYPNEUSTES FORMOSUS.

A. formosus, Valenciennes, 1846, Voy. de "Venus," Zooph., Pl. 2, figs. 2-2d; A. Agassiz, 1872, Rev. Ech., pp. 88, 479; 1881, "Challenger" Rpt., Vol. iii., p. 114; Hutton, 1876, Trans. N.Z. Inst., Vol. ix., p. 362; Tenison-Woods, 1878, Proc. Linn. Soc.

N.S.W., Vol. ii., p. 163; Ramsay, 1885, Cat. Ech. Aust. Mus., pp. 19, 50; *Echinus elevatus*, Hutton, 1872, Cat. Ech. N.Z., p. 11.

Distribution.—New Zealand; Australia; Tasmania.

57. AMBLYPNEUSTES GRISEUS.

Echinus griseus, Blainville, 1825, Dict. Sc. Nat., Oursin, p. 81; *Amblypneustes griseus*, Agassiz, 1841, Monog. Scut., Introd.; 1846, Cat. Rais. Ann. Sc. Nat., Vol. vi., p. 362; A. Agassiz, 1872, Rev. Ech., pp. 89, 489; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 163; Ramsay, 1885, Cat. Ech. Aust. Mus. pp. 19, 50.

Distribution.—New Zealand; Australia; Tasmania.

NOTE.—In 1880 Studer described a supposed new species of this genus from New Zealand, which he named *A. grossularia*. See the "Zoological Record for 1880, Echi. p. 6. The Recorder, however, states that it is "perhaps the young of a described form."

58. HOLOPNEUSTES INFLATUS.

H. inflatus (Lütken), A. Agassiz, 1872, Bull. Mus. Comp. Zool., Vol. iii., p. 18; 1872, Rev. Ech., pp. 136, 483; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 164.

Distribution.—New Zealand; Australia.

59. ECHINUS ANGULOSUS.

Cidaris miliaris angulosa, Klein, 1734, Nat. Desp. Ech.; *Echinus angulosus*, A. Agassiz, 1872, Rev. Ech., pp. 122, 489; 1881, "Challenger" Rpt., Vol. iii., p. 115; Hutton, 1876, Trans. N.Z. Inst., Vol. ix., p. 362; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 342; Bell, 1884, "Alert" Rpt., p. 121; Meissner, 1892, Sitz. der Gesell. naturf. Berlin, p. 184.

Distribution.—Stewart Island; Dunedin; Cape Campbell; Australia; Philippine Islands; Mauritius; Cape of Good Hope; Mozambique; Red Sea.

60. ECHINUS MAGELLANICUS.

E. magellanicus, Phillipi, 1857, Wieg. Archiv, Vol. i., p. 130; A. Agassiz, 1872, Rev. Ech., pp. 123, 492; Hutton, 1876, Trans. N.Z. Inst., Vol. ix., p. 362; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 165; Studer, 1889, Die Forschungsreise S.M.S. "Gazelle," Vol. iii., pp. 283-285; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 196; *Echinus albocinctus*, Hutton, 1872, Cat. Ech. N.Z., p. 12.

Distribution.—Wellington Harbour; Pelorus Sound; Tasman Bay; Dunedin; Stewart Island; Philippine Islands; Falkland Islands; Magellan Straits; Chili; Cape of Good Hope to Marion and Kerguelen Islands; Prince Edward Island.

61. ECHINUS MARGARITACEUS.

E. margaritaceus, Lamarck, 1816, Anim. sans Vert., p. 47; Valenciennes, 1846, Voy. de "Venus," Zooph., Pl. 6, figs. 1-1f; A. Agassiz, 1872, Rev. Ech., pp. 124, 493; 1881, "Challenger" Rpt., Vol. iii., p. 117; Studer, 1889, Die Forschungsreise S.M.S. "Gazelle," Vol. iii., pp. 288, 289.

Distribution.—New Zealand; Magellan Straits; Kerguelen and Heard Islands; Juan Fernandez.

62. EVECHINUS CHLOROTICUS.

Echinus chloroticus, Valenciennes, 1846, Voy. de "Venus," Zooph., Pl. 7, figs. 2-2d; Hutton, 1872, Cat. Ech. N.Z., p. 11; *Heliocidaris chlorotica*, Agassiz and Desor, 1846, Ann. Sci. Nat., Vol. vi., p. 371; *Psammechinus chloroticus*, A. Agassiz, 1863, Bull. Mus. Comp. Zool., Vol. i., p. 23; *Boletia viridis*, Verrill, 1867, Trans. Conn. Acad., Vol. i., p. 304; *Erechinus chloroticus*, Verrill, 1871, *ibid.*, p. 584; A. Agassiz, 1872, Rev. Ech., pp. 128, 502; 1881, "Challenger" Rpt., Vol. iii., p. 118; Hutton, 1876, Trans. N.Z. Inst., Vol. ix., p. 362; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 194; 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 188; *E. varituberculatus*, Bell, 1887, Ann. Mag. Nat. Hist., Ser. 5, Vol. xx, p. 403.

Distribution.—New Zealand; Fiji Islands.

EUCLYPEASTRIDÆ.

63. LAGANUM ROSTRATUM.

Laganum rostratum, Agassiz, 1841, Mon. Scut., p. 118; Gray, 1855, Cat. Rec. Ech., p. 9; *Peronella rostrata*, A. Agassiz, 1872, Rev. Ech., pp. 149, 523; Hutton, 1876, Trans. N.Z. Inst., Vol. ix., p. 362.

Distribution.—New Zealand; Zanzibar.

SCUTELLIDÆ.

64. ARACHNOIDES PLACENTA.

Echinus placenta, Linnæus, 1758, Syst. Nat., p. 666; *Arachnoides placenta*, Agassiz, 1841, Mon. Scut., p. 94; 1847, Cat. Rais. Ann. Sc. Nat., Vol. vii., p. 134; Gray, 1855, Cat. Rec. Ech., p. 13; A. Agassiz, 1872, Rev. Ech., pp. 90, 530; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 172; Ramsay, 1885, Cat. Ech. Aust. Mus., pp. 29, 52; Bell, 1884, Proc. Linn. Soc. N.S.W., Vol. ix., p. 503; Studer, 1889, Die Forschungsreise, S.M.S. "Gazelle," Vol. iii., p. 181; Lorient, 1893, Revue Suisse de Zool.; et Ann. de Mus. Genève, Vol. i., p. 376; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 197; *Echinarachinus zelandiæ*, Gray, 1845, Dieffenbach's "New Zealand," Vol. ii., p. 265; *Arachnoides zelandiæ*, Gray, 1855, Cat. Rec. Ech., p. 14; Hutton, 1872, Cat. Ech. N.Z., p. 12.

Distribution.—New Zealand; Australia; Torres Straits; East India Islands; Solomon Islands; Philippine Islands; Bay of Bengal.

CASSIDULIDÆ.

65. ECHINOBRISUS RECENS.

Nucleolites recens, Milne-Edwards, 1836, in Cuvier, Règ. An. Ed. Ill., Pl. xiv., fig. 3; Agassiz, 1849, Cat. Rais., Ann. Sc. Nat., Vol. vii., p. 153; *Echinobrissus recens*, D'Orbigny, 1854, Rev. Mag. Zool., p. 24; A. Agassiz, 1872, Rev. Ech., pp. 108, 556; Hutton, 1872, Cat. Ech. N.Z., p. 13.

Distribution.—Cook Strait; Madagascar.

SPATANGIDÆ.

66. POURTALESIA LAGUNCULA.

P. laguncula, A. Agassiz, 1879, Proc. Am. Acad., Vol. xiv. p. 205; 1881, "Challenger" Rpt., Vol. iii., p. 137.

Distribution.—Off East Cape and Cape Egmont; East Indies; North Pacific; 700-2900 fms.

67. ECHINOCARDIUM AUSTRALE.

E. australe, Gray, 1851, Ann. Mag. Nat. Hist., Vol. vii., p. 131; 1855, Cat. Rec. Ech., p. 44; A. Agassiz, 1872, Rev. Ech., pp. 109, 580; 1881, "Challenger" Rpt., Vol. iii., p. 174; Sladen, 1878, Journ. Linn. Soc. (Zool.), Vol. xiv., p. 441; Hutton, 1878, Trans. N.Z. Inst. Vol. xi., p. 307; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 174; 1888, *ibid.*, Vol. v., p. 204; Bell, 1884, *ibid.*, Vol. ix., p. 503; Ramsay, 1885, Cat. Ech. Aust. Mus., pp. 37, 53; Meissner, 1892, Sitz. der Gesell. naturf. Berlin, p. 185; Farquhar, 1895, Trans. N.Z. Inst., Vol. xxvii., p. 196; 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi. p. 187; *Echinocardium zealandicum*, Gray, 1851, Ann. Mag. Nat. Hist., Vol. vii., p. 131; 1855, Cat. Rec. Ech., p. 44; *Amphidotus zealandicus*, Hutton, 1872, Cat. Ech. N.Z., p. 14.

Distribution.—Wellington Harbour, Cape Campbell, Chalky Inlet; Tasman Bay; Australia; Tasmania; East India; Japan, China, South Africa; Mozambique; New Caledonia.

68. BRISSOPSIS LUZONICA.

Kleinia luzonica, Gray, 1851, Ann. Mag. Nat. Hist., Vol. vii., p. 133; *Brissopsis luzonica*, A. Agassiz, 1872, Rev. Ech., pp. 95, 593; Tenison-Woods, 1878, Proc. Linn. Soc. N.S.W., Vol. ii., p. 174; 1881, A. Agassiz, "Challenger" Rpt., Vol. iii., p. 189.

Distribution.—New Zealand (?); Australia (?); New Caledonia; Tahiti; Arafura Sea; Philippine Islands; Japan; Luzon; Siam; Formosa; Banca Strait.

69. METALIA STERNALIS.

Spatangus sternalis, Lamarck, 1816, Anim. sans Vert., p. 31;
Metalia sternalis, Gray, 1855, Cat. Rec. Ech. p. 51; A. Agassiz, 1872,
 Rev. Ech., pp. 145, 600; Tenison-Woods, 1878, Proc. Linn. Soc.
 N.S.W., Vol. ii., p. 175.

Distribution.—N.Z.; Australia; New Caledonia; Sand-
 wich Islands; Samoa; Society Islands; East India Islands;
 Philippine Islands; Mauritius; Zanzibar; Red Sea; Siam; Madras;
 Kingsmill Islands.

HOLOTHURIA.

SYNAPTIDÆ.

70. SYNAPTA UNCINATA.

Synapta uncinata, Hutton, 1872, Cat. Ech. N.Z., p. 16; Théel,
 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 27; Dendy, 1897,
 Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 25.

Distribution.—New Zealand.

71. SYNAPTA INÆQUALIS.

Synapta inæqualis, Hutton, 1872, Cat. Ech. N.Z., p. 17; Théel,
 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 32; Dendy, 1887,
 Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 26.

Distribution.—New Zealand.

72. CHIRODOTA DUNEDINENSIS.

Chirodota dunedinensis, Parker, 1881, Trans. N.Z. Inst., Vol.
 xiii., p. 418; Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.),
 p. 34; Dendy, 1887, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 26;
C. australiana, Théel, "Challenger" Rpt., Vol. xiv. (Hol.), p. 16.

Distribution.—Dunedin Harbour; Stewart Island.

MOLPADIDÆ.

73. ANKYRODERMA MARENZELLERI.

Ankyroderma Marenzelleri, Théel, 1886, "Challenger" Rpt.,
 Vol. xiv. (Hol.), p. 41.

Distribution.—Off East Cape; 700 fms.

74. CAUDINA CORIACEA.

Molpadia coriacea, Hutton, 1872, Cat. Ech. N.Z., p. 17; 1879, Trans. N.Z. Inst., Vol. xi., p. 307; *Caulina meridionalis*, Bell, 1883, Proc. Zool. Soc., p. 58; *C. coriacea*, Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.), pp. 47, 54; Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 28; l.c., p. 456.

Distribution.—Oamaru; New Brighton; Lyttelton; Cook Straits.

75. TROCHOSTOMA ALBICANS, var. GLABRA.

T. albicans, var. *glabra*, Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 46.

Distribution.—Off East Cape; 700 fms.

76. TROCHOSTOMA VIOLACEA.

Trochostoma violacea, Studer, 1877, Monatsber. d. k. preuss. Akad. d. Wiss. Berlin; *T. violacea*, Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 42.

Distribution.—Off East Cape; Kerguelen; 20-700 fms.

DENDROCHIROTÆ.

77. CUCUMARIA HUTTONI.

Cucumaria Huttoni, Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 32.

Distribution.—Oamaru.

78. CUCUMARIA THOMSONI.

Cucumaria Thomsoni, Hutton, 1879, Trans. N.Z. Inst., Vol. ix., p. 307; Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.) p. 116; *C. (?) Thomsoni*, Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 34.

Distribution.—Stewart Island.

79. CUCUMARIA (?) TURBINATA.

Labidodesmus turbinatus, Hutton, 1879, Trans. N.Z. Inst., Vol. xi., p. 307; *Cucumaria (?) turbinata*, Théel, 1886, "Chal-

lenger" Rpt., Vol. xiv. (Hol.), p. 117; Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 34.

Distribution.—Stewart Island.

80. COLOCHIRUS ALBA.

Chirodota (?) *alba*, Hutton, 1872, Cat. Ech. N.Z., p. 17; *Echinocucumis alba*, Hutton, 1879, Trans. N.Z. Inst., Vol. xi., p. 307; Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 111; *Colochirus alba*, Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 35.

Distribution.—Wellington Harbour.

81. COLOCHIRUS OCNOIDES.

Colochirus ocnoides, Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 36.

Distribution.—New Brighton.

82. COLOCHIRUS CALCAREA.

Colochirus calcarea, Dendy, 1897, Journ. Linn. Soc., (Zool.), Vol. xxvi., p. 38.

Distribution.—Cook Strait.

83. COLOCHIRUS BREVIDENTIS.

Thyone brevidentis, Hutton, 1872, Cat. Ech. N.Z., p. 16; Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 141; *Colochirus brevidentis*, Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 40.

Distribution.—New Zealand.

84. PSOLUS MACQUARIENSIS.

Psolus macquariensis, Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 41.

Distribution.—Macquarie Island.

85. THYONIDIUM LONGIDENTIS.

Thyone longidentis, Hutton, 1872, Cat. Ech. N.Z., p. 16; *Thyone caudata*, Hutton, 1872, l.c. p. 16; *Pentadactyla longidentis*, Hutton, 1879, Trans. N.Z. Inst., Vol. xi., p. 307; *Thyonidium rugosum*, Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 95; *Thyone longidentis*, Théel, 1886, l.c. p. 141; *Thyonidium caudatum*, Théel, 1886, l.c. p. 147; *Phyllophorus caudatus*, Ludwig, 1891, Bronn's Klassen und Ordnungen, Echinodermen, p. 347; *Phyllophorus rugosus*, Ludwig, 1891, l.c. p. 347; *Thyonidium longidentis*, Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 42.

Distribution.—Cook Strait.

ASPIDOCHIROTÆ.

86. STICHOPUS MOLLIS.

Holothuria mollis, Hutton, 1872, Cat. Ech. N.Z., p. 15; 1879, Trans. N.Z. Inst., Vol. xi., p. 308; Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 239; *Sticophus sordidus*, Théel, 1886, l.c. p. 167; *Stichopus mollis*, Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 46.

Distribution.—Cook Strait.

87. HOLOTHURIA ROBSONI.

Holothuria Robsoni, Hutton, 1879, Trans. N.Z. Inst., Vol. xi., p. 308; Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 239; Dendy, 1897, Journ. Linn. Soc. (Zool.), Vol. xxvi., p. 48.

Distribution.—Cape Campbell.

88. HOLOTHURIA LACTEA.

Holothuria lactea, Théel, 1886, "Challenger" Rpt., Vol. xiv. (Hol.), p. 183; Koehler, 1895, Rev. Biol. du Nord de la France, Vol. vii; Annales de l'Université de Lyon, 1896, p. 102.

Distribution.—Off East Cape; North Atlantic; Mediterranean; 700-1000 fms.

ELPIDIIDÆ.

89. ENYPNIASTES EXIMIA.

Enypniastes eximia, Théel, 1882, "Challenger" Rpt., iv. (Hol.), p. 56.

Distribution.—Off the east coast North Island; 1100 fms.

DEIMATIDÆ.

90. PANNYCHIA MOSELEYI.

Pannychia moseleyi, Théel, 1882, "Challenger" Rpt., Vol. iv. (Hol.), p. 88.

Distribution.—Off East Cape; Australia; 700-950 fms.